



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/239,871	01/29/1999	DOMINIC P. CARROZZA	22-0071	6639

7590 10/11/2002

TRW INC
SPACE & ELECTRONICS GROUP
ONE SPACE PARK E2 6072
REDONDO BEACH, CA 90278

EXAMINER

KUMAR, PANKAJ

ART UNIT PAPER NUMBER

2631

DATE MAILED: 10/11/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/239,871

Applicant(s)

CARROZZA ET AL.

Examiner

Pankaj Kumar

Art Unit

2631

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-29 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed have been fully considered but they are not persuasive.
2. Applicant's argument that the examiner should explain the teaching of Williams, outside of what the applicant is claiming, is unacceptable and places an undue burden on the examiner. The examiner has explained how Williams meets the claimed limitations. One would be able to apply the teaching of Williams to meet applicant's claim 1 and 17 since Williams reads on claims 1 and 17 and Williams also describes time division multiplexing as explained in this and the prior office action.
3. Applicant's argument that Linsky does not teach channelizer since Linsky does not teach time division multiplexing is invalid. There is no requirement that states that a channelizer can only be taught with a time division multiplexer. Linsky teaches channelizer with 213 in figure 2 since this device creates a path for the signals, coming out of 203, to flow into; hence 213 is channelizing signals between a transmitter and receiver as shown in 211.
4. In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

Art Unit: 2631

5. Linsky can use time division multiplexing (TDM). The definition of TDM includes allocating a different time slot for different sources during data transmission.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 13 and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Williams et al US pat no. 5,448,592.

6. Regarding claim 1, Williams et al. shows a receiver comprising: a memory (Williams fig. 10: 7, 8, 9) including an addressable storage array which stores a sequence of data samples contained in a time division multiplexed signal (Williams et al. claim 13; col. 15 lines 8 to 23 as shown by the applicant) from a plurality of channels (Williams fig. 10: 32 bit inputs into 7 through 9) with each successive data sample (Williams fig. 10: LSB then output of 8 then MSB) belonging to a channel different from a channel to which an immediately preceding data sample belongs (Williams fig. 10: LSB, output of 8 and MSB are all from different shift register channels) and outputs the stored data samples in a sequence of data groups (Williams fig. 10: LSB is data group which can mean only one bit; similarly output of 8 is another group and MSB is another group) equal in number to the number of the plurality of channels (Williams fig. 10: three shift register channels 7, 8 and 9 and 3 data groups LSB, output of 8 and MSB) with each data group containing a plurality of samples from one of the plurality of channels; and a decoder

Art Unit: 2631

(Williams fig. 10: 13 modulator which decodes the bits into a modulated signal), responsive to the sequence of data groups, which decodes the data samples within the data groups and outputs decoded data samples of the plurality of data groups from the plurality of channels (Williams fig. 10: 13 is outputting the decoded data samples of the plurality of data groups from the plurality of channels).

3. The discussion of claim 1 applies to claim 17.

4. Regarding claim 13, it is inherent for the memory in Williams et al. to comprise a write address generator and a read address generator and the addressable storage array contains memory cells which are addressed by addresses generated by the write address generator and the read address generator, the sequence of data samples being written in a group of memory cells with addresses generated by the write address generator, and the sequence of data groups being read out with addresses generated by the read address generator. It is inherent since these are characteristic elements of a memory.

5. *Claim Rejections - 35 USC § 103*

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

7. A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 2-12, 14-16, 18-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Williams et al US pat no. 5,448,592.

Art Unit: 2631

9. Regarding claim 2, Williams does not show the data samples comprise orthogonally encoded data. Instead Williams shows the data samples comprise convolutionally encoded data (Williams "It is clearly necessary to take action to prevent catastrophic error propagation. The problem has traditionally been overcome in the convolutionally-encoded case by using the process of differentially encoding the data first."). It would have been obvious to one skilled in the art at the time of the invention to modify Williams with orthogonally encoded data instead of convolutionally encoded data. One would be motivated to do so since both are preventing error propagation and they are both subsets of data encoding types.; and the decoder is a biorthogonal inner code soft decision data decoder (Williams paragraph 29 : "Another feature of this scheme is that the decoders work with 1-dimensional distances and are therefore not as complex as the decoders used in the original scheme which worked with 2-dimensional distances due to the nature of the signal constellations."; hence it is 'uni' instead of 'bi' (from biorthogonal); It would have been obvious to one skilled in the art at the time of the invention to modify Williams since 1-dimensional or 'uni' is not as complex as two dimensional or 'bi'. One would be motivated to do so as taught in Williams – based on the nature of the signal constellations. Williams paragraph 7 says "It has been shown however that by using a larger constellation (e.g. 32 points) and a suitable coding of the 4 bits, the resultant inherent redundancy in the modulated symbol sequence can be exploited by a soft decision decoder to improve the reliability of decoding in the presence of noise to an extent which exceeds the degradation caused by the larger numbers of points and results in a net coding gain."; orthogonal is not shown as discussed above).

Art Unit: 2631

10. Regarding claim 3, claim 2 is discussed above. Williams shows a receiver wherein the data decoder is a Reed Muller decoder (Williams paragraph 41 “... Reed-Muller ... decoders ...”; fig. 11: 28).

11. Regarding claim 4, claim 2 is discussed above. Williams shows a receiver wherein the encoded data samples are QPSK encoded (Williams fig. 5; QPSK is equivalent to 4-ary QAM which is a subset of 16-ary QAM shown in fig. 5).

12. Regarding claims 5 to 8, Linsky shows the receiver is contained in a satellite (Linsky: col. 3, fourth full paragraph).

13. Regarding claims 9 to 12, Williams shows a channelizer (Linsky: fig. 11: 26), which is responsive to an input bandwidth and which divides the input bandwidth into a plurality of output channels each of equal bandwidth (Williams fig. 11: / 32x7 and /32). What Williams also shows is one of the output channels comprising the time division multiplexed signal (Williams claim 13).

14. Regarding claims 14 to 16, it is inherent for the memory in Williams et al. to comprise a write address generator and a read address generator and the addressable storage array contains memory cells which are addressed by addresses generated by the write address generator and the read address generator, the sequence of data samples being written in a group of memory cells with addresses generated by the write address generator, and the sequence of data groups being

Art Unit: 2631

read out with addresses generated by the read address generator. It is inherent since these are characteristic elements of a memory.

Regarding claims 18 to 29, the above discussion for claims 2-12, 14-16 apply.

Conclusion

15. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Art Unit: 2631


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Pankaj Kumar whose telephone number is (703) 305-0194. The examiner can normally be reached on Monday through Thursday after 8AM to after 6:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chi H. Pham can be reached on (703) 305-4378. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9314 for regular communications and (703) 872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3800.

PK

October 8, 2002


CHI PHAM
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600 10/16/02